# BRITISH COLUMBIA MINISTRY OF FORESTS

## Tree Farm Licence

# TFL 23

**held by Pope and Talbot Ltd.**

## Rationale for Allowable Annual Cut

## (AAC) Determination

(determination made August 31, 1994
**John Cuthbert**
**Chief Forester**

## Table of Contents


- Introduction
- AAC Determination
- Information sources used
- Rationale for decision
  - Factors required to be considered
- Consideration of factors as required by Section 7
  - Growth and yield predictions
  - Inventory information
  - Minimum harvest age
  - Land base contributing to timber harvest
  - Regeneration delay
  - Not satisfactorily re-stocked (NSR) areas
  - Integrated resource management (IRM) constraints
- Factors not considered in this determination
- Technical limitations of the information used
- Implementation of Decision


## Documents attached:

- Appendix 1: Section 7 of the B. C. *Forest Act*.
- Appendix 2: Section 4 of the Ministry of Forests Act.
- Appendix 3: Minister's July 28, 1994 Letter to the Chief Forester.
- Appendix 4: Summary of Public Input.

# Introduction

**Description of the TFL:** Tree Farm licence (TFL) 23, held by Pope & Talbot Ltd., is situated in the Arrow Forest District in the south-east corner of the province. The TFL is located along Arrow Lake south of Glacier National Park, and extends from Valhalla Provincial Park in the east to Monashee Provincial Park in the west. TFL 23 consists of several separate areas which are accessed by provincial highways that run from Revelstoke to Castlegar and Vernon to Nakusp. Castlegar, Nakusp and Revelstoke are the main communities associated with the TFL.

The total land base for TFL 23 is 554 977 hectares. Of this area, 4 710 hectares are private land owned by Pope & Talbot. The TFL has a productive forest land base of 371 300 hectares and a net operable land base of 211 288 hectares ( i.e. 56.9 per cent of the productive forest or 38.1 per cent of the total TFL area).

The forest of TFL 23 lies within the interior wet-belt and consists predominately of hemlock/cedar types. However, there is a broad range of forest types, with 10 conifer tree species occuring as mixtures in forest stands. The logs harvested from the TFL are processed locally, providing approximately 65% of the log requirements of the Pope & Talbot Ltd. Castlegar sawmill.

**Recent AAC history:** TFL 23 was originally held by Westar Timber Ltd. During the period of Management and Working Plan #7, the TFL was divided into two new licences. The southern portion of the TFL was assigned to Pope & Talbot Ltd. on April 15, 1992. An interim AAC of 700 000 cubic metres per year was determined for the TFL, of which 80 700 cubic metres per year was allocated to the Small Business Forest Enterprise Program (which included the 5 per cent takeback resulting from the change in licensees, as per Section 50 of the *Forest Act*). This AAC, effective Jan. 1, 1992, has continued to be in effect due to the extension of the Management and Working Plan #7 from Jan. 1, 1993 to August 31, 1994. Until the present determination there has been no partitioning of the AAC for the TFL.

**Land use issues:** While areas within the TFL have been proposed for consideration through the Protected Area Strategy (PAS) and are currently being reviewed by the West Kootenay / Boundary CORE Table, no decision has been made by government yet on these areas. Accordingly, these areas are assumed to contribute to the AAC for this determination, pending a land-use decision by Cabinet.

# AAC Determination

Effective September 1, 1994 to December 31, 1998, the new AAC for TFL 23 will be 680 000 $m^3$. Of this volume, I am specifying 75 000 $m^3$ per year attributable to hemlock-dominated forest types, age class 9; 50 000 $m^3$ per year attributable to terrain which is inoperable for conventional harvesting systems; and 555 000 $m^3$ per year attributable to the remaining timber types and terrain within the TFL.

The AAC determined is lower than the figure of 700 000 $m^3$ proposed by the licensee for two main reasons. First, the licensee could not provide an analysis reflecting current management practices which

would support a figure of 700 000 m³ per year. Second, the licensee could not provide a 20-year plan that demonstrated that the proposed cut could be maintained without compromising integrated resource management requirements over the short term. However, I have not lowered it as much as I might have otherwise because I have included an additional 50 000 m³ attributable to terrain that is available for non-conventional harvesting systems.

# Information sources used

Information considered in determining the AAC for TFL 23 includes the following:

--TFL 23 Management Plan No. 8;
--Timber supply analysis data package dated March 18, 1994, submitted by the licensee;
--Timber supply analysis report dated May 3, 1994, submitted by the licensee;
--1994 review by the Forest Service of licensee's timber supply analysis;
--20-year strategic development plan for TFL 23;
--Statement of Management Objectives, Options and Procedures (SMOOP) for TFL 23.

# Rationale for decision

## Factors required to be considered

Section 7 of the *Forest Act* (revised 1992) requires the Chief Forester to consider various factors in determining AACs for TFLs. This section of the Act is appended as Appendix 1.

# Consideration of factors as required by Section 7

**Section 7 (3)**

**In determining an allowable annual cut under this section the chief forester, despite anything to the contrary in an agreement listed in section 10, shall consider**

**(a) --the rate of timber production that may be sustained on the area, taking into account**

**(i) --the composition of the forest and its expected rate of growth on the area;**

### Growth and yield predictions

Although there is some uncertainty regarding yield predictions, particularly for existing stand volumes, the Forest Service's Inventory Branch and Research Branch approved the site index assignment methodology, waste and breakage factors and yield tables. Ratio sampling is now being done on TFL 23 which will provide a check of existing inventory volumes. I am satisfied that the timber growth rate projections used in the licensee's analysis constitute the best available information for use in determining allowable harvest levels for this area.

### Inventory information

An inventory update of the TFL was completed in 1992/93, as required in the Chief Forester's approval letter for MP No. 7. This update included designation and mapping of environmentally sensitive areas, visual quality objectives, operability, recreation and designation of steep slope areas. An inventory record keeping system that can be updated annually and generate reports has also been established and maintained.

## Minimum harvest age

Minimum harvest age is the time it takes for stands to grow to a harvestable condition. Minimum harvest ages in the licensee's analysis are based on the culmination age (the stand age at which the mean annual increment assumes its maximum value). By harvesting stands at this age, the maximum average harvest over the long term is achieved. I am satisfied that the minimum harvest ages used in the analysis were appropriate.

## Land base contributing to timber harvest

As noted above, the areas being considered for protected area status will contribute to the AAC for this determination.

The method used in the licensee's analysis to determine the land base contributing to the harvestable timber supply reflects standard analytical practice. All areas that are not available for timber management in the long term are deducted from the total land base to arrive at a value for the net operable land base.

Subject to the one concern listed below, the licensee's definition of the net operable land base is acceptable to the Arrow Forest District. The licensee did not include in its definition of the net operable land base areas operable only for non-conventional harvesting systems, such as helicopter logging and intermediate spar yarding systems. However, I am prepared for this determination to accept the inclusion of areas not available for non-conventional harvesting systems into the land base contributing to the AAC, since I see an opportunity for non-conventional harvesting without compromising forest management objectives. Accordingly, to ensure that other areas are not over-harvested, I am specifying that 50 000 $m^3$ per year are attributable to these types of terrain.

The only concern raised by the Arrow Forest District with respect to the licensee's determination of the net operable land base relates to reductions for roads, trails and landings used in the licensee's analysis. The Arrow Forest District has raised the concern that the future productivity loss for roads, trails and landings that was estimated in the licensee's timber supply analysis is too low. The allowance for roads, trails, and landings has not been approved by Arrow District staff and is significantly less than what was used in the timber supply review for the adjacent Arrow TSA. However, the licensee completed a sensitivity analysis that indicated that increased productivity losses due roads, trails and landings had no effect in the short term on timber supply.

**(ii) --the expected time that it will take the forest to become re-established on the area following denudation;**

## Regeneration delay

The timber supply analysis submitted by Pope & Talbot assumes a regeneration delay of 3 years. Arrow Forest District staff have expressed concerns that the regeneration delay may be longer than 3 years in high elevation areas. However, the licensee performed a sensitivity analysis that showed that changes in

the regeneration delay had no effect on the short term timber supply. Therefore, I am satisfied that the use of this assumption is appropriate in determining the AAC on this area.

### Not satisfactorily re-stocked (NSR) areas

There were 2328 hectares of current, and 5311 hectares of backlog NSR on the TFL at the time of this analysis. The existing current NSR will be restocked according to the regeneration delay. Pope and Talbot has a program in place that will ensure that all backlog NSR will be treated by the end of 1995. I am satisfied that the NSR restocking objectives stated by the licensee will be met and that the assumptions used in the licensee's timber supply analysis are therefore appropriate for this AAC determination.

**(iii) --silvicultural treatments to be applied to the area;**

The licensee's proposed silvicultural treatments on TFL 23 meet basic silvicultural requirements. The analysis did not consider incremental silviculture. Some juvenile spacing, fertilization and pruning is proposed in the management plan, subject to the availability of funding. However, these activities will not affect harvestable timber volumes in the short term.

**(iv) --the standard of timber utilization and the allowance for decay, waste and breakage expected to be applied with respect to timber harvesting on the area;**

Current and proposed timber utilization on TFL 23 and the utilization levels used in the timber supply analysis are consistent with Ministry of Forests Interior utilization standards. The decay, waste and breakage factors used in the licensee's analysis were approved by the Forest Service. I am satisfied that the values assigned to these factors are appropriate for use in determining this AAC.

**(v) --the constraints on the amount of timber produced from the area that reasonably can be expected by use of the area for purposes other than timber production;**

### Integrated resource management (IRM) constraints

The licensee's proposed AAC of 700 000 $m^3$ per year was supported by a status quo option which, by their own acknowledgement, did not account for current management practices aimed at protecting wildlife habitat. The licensee's wildlife option, which models standards for wildlife habitat developed jointly by the Ministry of Forests, the Ministry of Environment, Lands, and Parks, and Pope and Talbot, may be a more realistic representation of the impact of current management practices. This wildlife option indicates that the current harvest level could only be maintained for a decade if the long term harvest level is set at a level which is considerably less than what could be achieved under current management practices. Calculations by Ministry of Forests staff indicate that to achieve the maximum sustainable long-term harvest level in the analysis, the current rate of harvest would have to be reduced immediately in order to avoid a drop to below the long-term harvest level in the future.

In order to base the AAC determination on the best information available, I requested that the licensee provide additional timber supply analyses based on the management assumptions applied in the wildlife option, ensuring that the long-term harvest level is not set at a sub-optimal level. I should note that in these analyses, the licensee changed green-up from 5 metres to a less restrictive forest cover requirement of 3 metres for VQOs and general forestry zones. Even with the less restrictive forest cover requirements, initial harvest levels would have to decrease by approximately 11% to prevent future drops below the long-term harvest level. Further sensitivity analyses based on the wildlife option

indicated that even using more optimistic assumptions regarding site index adjustments, species conversions, of visual quality objectives and forest cover requirements would require a reduction in current harvest levels to prevent future drops below the long-term harvest level. Therefore, I believe that a reduction in current harvest levels is justified.

My opinion is confirmed in this regard by the licensee's failure to provide a 20-year plan that reflects the terms of reference used to prepare the 20-year plan. The 20-year plan associated fails to adequately address a number of IRM requirements primarily associated with block size, adjacency, encroachment onto riparian areas and consideration of wildlife habitat that were specified in the terms of reference. It is my understanding that the 20-year plan falls short of meeting the current rate of harvest by approximately 4%. Further, the licensee agrees that approximately 6-9% of the volume scheduled for harvest in the 20-year plan would have to be eliminated in order to meet concerns for other resources. When these two figures are considered a 10% volume deficit in the 20-year plan is indicated.

Another concern raised by the Arrow Forest District relates to cutblock adjacency and green-up requirements for the timber emphasis zone. These requirements are felt by District staff to be less restrictive than current practices. However, sensitivity analysis done by the licensee showed that more stringent forest cover requirements for this zone would have little effect on the short-term harvest forecast. Accordingly, I have not made any reduction to the AAC in response to the District's concern.

**(vi) --any other information that, in his opinion, relates to the capability of the area to produce timber;**

About 9% of the timber harvesting land base in TFL 23 consists of hemlock leading stands greater than 140 years old. These stands have been identified as problem stands because they contain a high proportion of pulplogs and are of marginal economic value for timber harvesting. During the period 1990-1993 the licensee achieved only 71% of the target harvest level for problem forest types on TFL 23. Performance was better in the Arrow portion of TFL 23 than in the Revelstoke portion; however, there is concern that these stands are not harvested in proportion to the amount that they constitute of the land base that contributes to the AAC and that normal sawlog stands will be harvested instead in order to achieve cut control requirements. In addition, there is concern that the timber supply analysis model assumes that the oldest stands (i.e. problem forest types) are harvested first and if they are not being harvested operationally, then the timber supply analysis will project an artificially high AAC. To address this issue, I have included in the AAC for TFL 23 a partitioned component of the harvest to be obtained from these older hemlock types.

**(b) --the short and long term implications to the Province of alternative rates of timber harvesting from the area;**

The wildlife option of the timber supply analysis shows that the current harvest level could be maintained for a decade only if the long term harvest level is held below the maximum sustainable long-term harvest level. If, on the other hand, the maximum sustainable harvest level is to be maintained over the long term, then in my opinion, current harvest levels will have to be reduced immediately in order to avoid a drop below the long-term harvest level in the future. However, I have tried to minimize any short-term economic disruptions by minimizing as far as possible the reduction I feel is necessary. The AAC that I have determined attempts to balance the potential effects of future timber supply drops below the long-term harvest level and short-term economic disruptions, while considering the impacts of harvest levels on integrated resource management.

**(c) --the nature, production capabilities and timber requirements of established and**

**proposed timber processing facilities;**

The AAC determination has included those types of timber which are capable of being manufactured in the licensee's processing facility. I understand that the logs harvested from TFL 23 provide 65% of the licensee's sawmill log requirements, and I have considered this fact in determining the AAC.

**(d) --the economic and social objectives of the Crown, as expressed by the minister, for the area, for the general region and for the Province; and**

The Minister has expressed the social and economic objectives of the Crown for the province (letter dated July 28, 1994 attached as appendix) and I understand them to apply to TFL 23. They are consistent with the objectives stated in the Forest Renewal Plan and include good forest stewardship, a stable timber supply, and allowance of time for communities to adjust to harvest level changes in a managed transition from old growth to second-growth forests, so as to provide for continuity of employment. The Minister advised that any decreases in allowable cut at this time should be no larger than are necessary to avoid compromising long-run sustainability. He placed particular emphasis on the importance of long-term community stability and the continued availability of forest jobs. To this end he asked that I consider the potential impacts on timber supply of commercial thinning and harvesting in previously uneconomical areas. The latter would likely require the use of alternative harvesting systems, and to encourage this the Minister suggested I consider a partitioned cut.

I have considered economic and social considerations in determining the AAC. By specifying a portion of the cut that is attributable to terrain that is historically inoperable, an opportunity to access timber that would otherwise be unavailable for harvesting is provided. The partitioning of the harvest to these areas may help to minimize the socio-economic impacts of decreasing the AAC. At present, there is little opportunity for the use of commercial thinning to augment short-term timber supply.

**(e) --abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area.**

Factors used in the analysis to account for non-recoverable losses such as those due to fire, windthrow and insects, are derived from long-term historic data for the area and constitute the best available information for use in this area.

# Factors not considered in this determination

Since I must base my determination on current management practices, I am not prepared at this time to speculate about the impacts of the Forest Practices Code, the Protected Area Strategy and CORE. These factors have not been considered in determining the AAC, but will be considered in future determinations after land-use decisions have been made.

# Technical limitations of the information used

In making this AAC determination I am aware of the technical limitations of the information provided, and have taken these limitations into account.

Inventory and growth and yield data are subject to statistical uncertainty. Likewise, map projections and computer simulations of timber supply are models, or abstractions of reality. As such, they never reflect

reality perfectly and do not necessarily indicate the perfect solution to a problem. They do, however, provide valuable insights into potential impacts of different resource-use assumptions and are thus important components of the information which I must consider in AAC determinations.

# Implementation of Decision

This determination comes into effect on September 1, 1994, and will be effective to December 31, 1998, or to an earlier date if it becomes necessary to review the AAC decision for any reason prior to December 31, 1998

The AAC will be partitioned in the following manner:

--75 000 $m^3$ will be partitioned to hemlock-leading forest types, age classes 8 and 9; and
--50 000 $m^3$ will be partitioned to harvesting of areas inoperable for conventional harvesting systems; and
--555 000 $m^3$ will be partitioned to the remainder of the TFL.

John Cuthbert

Chief Forester

---

# Appendix 1: Section 7 of the B. C. *Forest Act*

## The B.C. *Forest Act* section 7 reads as follows:

**Allowable annual cut**

**7.** (1) The chief forester must determine an allowable annual cut before December 31, 1996, and after that determination at least once every 5 years after the date of the last determination, for

(a) the Crown land in each timber supply area, excluding tree farm licence areas and woodlot licence areas, and

(b) each tree farm licence area.

(1.1) If, after the coming into force of this subsection, the minister

(a) makes an order under section 6 (b) respecting a timber supply area, or

(b) amends or enters into a tree farm licence to accomplish the result set out under section 33.1 (1) (a) to (d),

then, with respect to that timber supply area or tree farm licence area, as the case may be, the chief forester is not required to make the determination under subsection (1) of this section before December 31, 1995, or within 5 years after the last determination, but is required to make the determination

(c) within 5 years after the order under paragraph (a) or the amendment or entering into under paragraph (b), and

(d) after the determination under paragraph (c), at least once every 5 years after the date of the last determination.

(1.12) If the allowable annual cut for the tree farm licence area is reduced under section 7.1 (3), the chief forester is not required to make the determination under subsection (1) or (1.1) of this section at the times set out in subsection (1) or (1.1) (c) or (d), but must make that determination within one year after the chief forester determines that the holder is in compliance with section 7.1 (2).

(1.2) When the chief forester determines an allowable annual cut for a tree farm licence area, any management plan that specifies an allowable annual cut for that area is conclusively deemed to be amended so that the allowable annual cut specified in the management plan is the same as the most recent one determined by the chief forester.

(1.3) In determining an allowable annual cut under this section the chief forester may specify portions of the allowable annual cut attributable to

(a) different types of timber and terrain in different parts of Crown land within a timber supply area or tree farm licence area,

(b) different types of timber and terrain in different parts of private land within a tree farm licence area, and

(c) gains in timber production on Crown land that are attributable to silviculture treatments funded by the Province, the federal government, or both.

(2) The regional manager or district manager shall determine a volume of timber to be harvested under a woodlot licence during each year or other period of its term, according to the licence.

(3) In determining an allowable annual cut under this section the chief forester, despite anything to the contrary in an agreement listed in section 10, shall consider

(a) the rate of timber production that may be sustained on the area, taking into account

(i) the composition of the forest and its expected rate of growth on the area;

(ii) the expected time that it will take the forest to become re-established on the area following denudation;

(iii) silvicultural treatments to be applied to the area;

(iv) the standard of timber utilization and the allowance for decay, waste and breakage expected to be applied with respect to timber harvesting on the area;

(v) the constraints on the amount of timber produced from the area that reasonably can be expected by use of the area for purposes other than timber production; and

(vi) any other information that, in his opinion, relates to the capability of the area to produce timber;

(b) the short and long term implications to the Province of alternative rates of timber harvesting from the area;

(c) the nature, production capabilities and timber requirements of established and proposed timber processing facilities;

(d) the economic and social objectives of the Crown, as expressed by the minister, for the area, for the general region and for the Province; and

(e) abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area.

---

# Appendix 2: Section 4 of the Ministry of Forests Act

Section 4 of the *Ministry of Forests Act* (1978) reads as follows:

**Purposes and functions of ministry**

**4.** The purposes and functions of the ministry are, under the direction of the minister, to

(a) encourage maximum productivity of the forest and range resources in the Province;

(b) manage, protect and conserve the forest and range resources of the Crown, having regard to the immediate and long term economic and social benefits they may confer on the Province;

(c) plan the use of the forest and range resources of the Crown, so that the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation and other natural resource values are coordinated and integrated, in consultation and cooperation with other ministries and agencies of the Crown and with the private sector;

(d) encourage a vigorous, efficient and world competitive timber processing industry in the Province; and

(e) assert the financial interest of the Crown in its forest and range resources in a systematic and equitable manner.

---

# Appendix 3: Minister's July 28, 1994 Letter to the Chief Forester.

**File: 10100-01**

***Jul 28 1994***

John Cuthbert
Chief Forester
Ministry of Forests
595 Pandora Avenue
Victoria, British Columbia
V8W 3E7

Dear John Cuthbert:

**Re: Economic and Social Objectives of the Crown**

The *Forest Act* gives you the clear responsibility for determining Allowable Annual Cuts, decisions with far-reaching implications for the province's economy. The *Forest Act* provides that you consider the social and economic objectives of the Crown, as expressed by me, in making these determinations. The purpose of this letter is to provide this information to you.

The social and economic objectives expressed below should be considered in conjunction with environmental considerations as reflected in the Forest Practices Code, which requires recognition and better protection of non-timber values such as biodiversity, wildlife and water quality.

The government's general social and economic objectives for the forest sector are made clear in the goals of the Forest Renewal Program. In relation to the Allowable Annual Cut determinations you must make, I would emphasize the particular importance the government attaches to the continued availability of good forest jobs and to the long-term stability of communities that rely on forests.

Through the Forest Renewal Plan, the government is taking the steps necessary to facilitate the transition to more value-based management in the forest and the forest sector. We feel that adjustment costs should be minimized wherever possible, and to this end, any decreases in allowable cut at this time should be no larger than necessary to avoid compromising long-run sustainability.

In addition to the provincial perspective, you should also consider important local social and economic objectives that may be derived from the public input on the Timber Supply Review discussion papers where these are consistent with the government's broader objectives.

Finally, I would note that improving economic conditions may make it possible to harvest timber which has typically not been used in the past. For example, use of wood from commercial thinnings and previously uneconomic areas may assist in maintaining harvests without violating

forest practices constraints. I urge you to consider all available vehicles, such as partitioned cuts, which could provide the forest industry with the opportunity and incentive to demonstrate their ability to utilize such timber resources.

Yours truly,

Signed by
Andrew Petter
Minister

---

Return to TOC